**FS\_eNS\_Ph2 Agenda:**

CC#1:  March 25th (Wed.) (tdoc deadline March 23rd (Mon.) @6 am Pacific Time)

- Review and discuss the proposed merge solutions for KI#1 and KI#2 (refer to CC plan attached)

- Review and work on the merger of the Unhandled/revised PCRs from SA2#136 F2F meeting for KI#1 - KI#4

- If time permit, review new PCRs to determine if they are within the scope of KI#1-KI#4 in order to be considered as the potential solution

CC#2: April 3rd (Fri.) (tdoc deadline March 31st (Tue.) @6 am Pacific Time)

- Review and work on the merger of the Unhandled/revised PCRs from SA2#136 F2F meeting for KI#5 - KI#8

- If time permit, review new PCRs to determine if they are within the scope of KI#5-KI#8 in order to be considered as the potential solution

NOTE-1: Merge proposal will have priority to be handled during the CC.

NOTE-2: Following SA2 Vice Chair’s instructions, even for the SA2#136ah unhandled tdoc, please kindly resubmitted your revision. If no revision is received, there will be no discussion on the unhandled tdoc.

Rapporteur Meeting Notes for CC#2

3GPP Folder:

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| Item#'s  | Solution Titles | Key Issue#'s | Contributor(s) | Rapporteur’s proposal for Merging  | Outcome  |
| **Key Issue #5: Dynamic adjustment to meet the limitation of data rate per network slice in UL and DL** |
| 1 |  | 5 |   |  |  |
| **Key Issue#6: Constraints on simultaneous use of the network slice** |
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| **Key Issue #7: Support of 5GC assisted cell selection to access network slice** |
| 1 | S2-20xxxxx-Solution-for-Key issue-7 FS\_eNS\_ph2 (Apple) | 7 | **Apple**  | * Assuming UE registers with the Allowed NSSAI that may be associated with more than one frequency operating bands
* Proposed to update S-NSSAI info to include also the supporting frequency operating band
* UE is also impacted to be aware of the corresponding frequency operating band for the given S-NSSAI
* RAN is impacted to be aware of the frequency operating band associated with the given S-NSSAI in order to trigger the possible redirection

Could this be merged with ConvidaWireless’s PCR with similar concept?  |  |
| Meeting Notes: * Sprint asked for clarification if Apple assumed only a single operating frequency band per S-NSSAI while an Allowed NSSAI may include more than one S-NSSAIs and therefore, there could be more than one operating frequency bands for the given Allowed NSSAI for the given UE. Apple confirmed Sprint’s understanding. Furthermore, Apple responded that it is possible none of the operating frequency bands in the Allowed NSSAI is accessible by the UE. However, Sprint is still unclear how the network can enable RAN to support multiple operating frequency bands.
* Convida commented that, Apple’s PCR did not explain how 5GC enables RAN to support multiple operating frequency bands.
* T-Mobile asked, are those S-NSSAIs/Slices are Mutually Exclusive? Convida commented that, SA2 indeed needs to define if in such kind of scenario when different S-NSSAIs/slices operate in different operating frequency band, should those S-NSSAIs/Slices be Mutually Exclusive?
* Apple commented that, it could be quite risky if the Allowed NSSAI includes S-NSSAI only for the same operating frequency band that the UE is resided, because if the UE wants to operate in a different operating frequency band, then the UE needs to re-register without know for which S-NSSAI to register with?
* Sprint further asked if the UE can register with Allowed NSSAI with more than one operating frequency bands, could the UE have two different PDU sessions on different frequency bands – i.e. incoming DL data will still be received even though the UE is currently not operating on such frequency band? Apple responded that, certainly UE cannot operate on two different frequency bands simultaneously, however, one should differentiate the differences between UE registered with different operating frequency bands does not imply that UE can have direct data access to both frequency bands.
* Convida asked what would be the benefit to allow the UE to register with Allowed NSSAI with more than one frequency bands, but not able to establish MA PDU sessions with all those frequency bands?
* NEC commented that, it is un-natural for the UE to operate on more than one frequency bands simultaneously. T-Mobile agrees.
* Intel asked why would SA2 go ahead to work on this KI ahead of RAN. ZTE responded that, this is not the case, this KI is related to the core part. RAN has already started working on network assisted slice selection, however, with a much bigger scope. Samsung also commented that, the KI in SA2 is related to how the Allowed NSSAI should be supported in case of network assisted slice selection.
* Intel further commented that, for non-roaming, when UE wants to register to different frequency band, either 5GC or RAN can trigger handover or cell re-direction. The only thing left to do is the roaming case.
* HW commented that this SA2 KI has dependency on RAN slicing design in RAN which is currently still work in progress and has not been stabilized. HW further asked for the clarification of the working assumption in Apple’s PCR regarding the availability of the operating frequency bands support across the network, this would affect the handover support design consideration.
* Given part of the Convida Wireless PCR overlap Apple’s PCR, rapporteur suggested to review also Convida’s PCR in order to determine the way forward on both of these PCRs. See the meeting note of Convida’s PCR below to see the way forward.
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| 2 | S2-20xxxxx - FS\_eNS\_ph2 - Key Issue 7 Solutions (ConvidaWireless) | 7 | **ConvidaWireless** | * Similar assumption as Apple, with one additional assumption that UE registers with the Allowed NSSAI that associates with same frequency operating band.
* For the latter assumption, pre-provision is provided to the UE to be aware for which the frequency operating band corresponding to which Allowed or Configured NSSAI
* Similar system impacts as Apple

Could this be merged with Apple’s PCR with similar concept?  |  |
| Meeting Notes: * HW commented that, today UE may freely to request S-NSSAIs that may or may be supported in the UE’s currently serving frequency band. The solution#1 from Convida imposes additional restriction which may cause more complication to the slicing registration. Convida does not understand why this is the case given that Convida’s proposal does not change the outcome that network will reject such requested S-NSSAI.
* NEC commented that, based on his understanding of the KI, it is not about whether the UE should register with the S-NSSAI that supports the UE’s target frequency band in the current UE’s serving RA, but rather the UE’s target frequency band is supported for the given cell in the current UE’s serving RA. Hence, Convida’s solution#1 will not work unless there is clear understanding that the UE’s target frequency band is supported homogenous across the UE’s serving RA. Both E/// and T-Mobile agreed with NEC’s concern and suggested that, the KI needs to be first clarified before proceeding with any solution. Convida commented that, the clarification can also be architecture assumption decided by SA2 for this KI.
* Convida further commented that, RAN is also working on cell redirection on this issue. This could complement the solution#1 that is proposed by Convida because it does not proposed dynamic switching. Convida’s solution#2, however, is to enable dynamic switching in RAN which would have more significant RAN impact.
* Sprint asked Convida whether the solution#1 in Convida’s proposal does not involved dynamic switching. Convida responded that, there is still some form of switching in the sense that, the UE needs to re-register with the new target S-NSSAI/slice in order to access the target operating frequency band.
* Sprint asked Convida why multiple RFSP Indices are needed given that there are different priorities for the operating frequency bands to support RAN’s decision for which operating frequency band to redirect the UE to? Convida responded that, the reason of multiple RFSP Indices are needed because they are for different operating frequency bands in different S-NSSAIs/slices. Regarding how RAN make the decision to use which RFSP Indices, it may be due to the different events in term of MT or MO. In case of MO scenario, this may be a bit more complicated as the RAN needs to decide how to support the switching when such events occur between the two operating frequency bands. Such issue has to be addressed in RAN. ZTE commented that, in such scenario, RAN may have to rely on some local policy, for example, in order to make the decision.
* As a way forward, Apple will merge with Convida’s solution#2.
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| 3 | draft S2-200xxxx - KI7 Sol (Samsung) | 7 | **Samsung** | * The solution proposes to take Requested NSSAI (i.e. including S-NSSAIs in Allowed NSSAI and rejected S-NSSAIs) into account when the AMF/PCF determines RFSP index
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| Meeting Notes: * Sprint asked Samsung that with the single RFSP index, the RAN can still able to perform the cell redirection to the new target frequency band. Samsung responded that, the exact detail on how RAN could use RFSP index has not been described in Samsung’s solution. However, the intent is for the UE to re-register to the target S-NSSAI that supports the target frequency band so that RAN can redirect the UE to the new target frequency band.
* Sprint further asked if the current Allowed NSSAI in Samsung solution may support multiple operating frequency bands? Samsung responded that, for the scenario in Samsung proposal, the Allowed NSSAI does not have any S-NSSAI because the UE’s current serving operating frequency band is not the UE’s target frequency band. The S-NSSAI that supports the target frequency band is actually the Rejected S-NSSAI. Based on the RFSP index from the RAN, the UE will then perform cell re-selection and then The UE needs to re-register to include the prior Rejected S-NSSAI in the Request S-NSSAI so that it can obtain the new Allowed NSSAI.
* Sprint asked what is the different between this Samsung proposal and the solution#1 in Convida’s proposal? Convida responded that, Samsung proposal is to focus on the network to control the redirection. In Convida’s proposal, the focus is the UE to make the decision. The concern from Convida’s against Samsung’s proposal is that, it is unclear how the network know what target operating frequency band that the UE is interested in so that the network can generate the appropriate RFSP index?
* ZTE asked Samsung, why the Rejected S-NSSAI is used instead of Configured S-NSSAI. It seems to change the existing definition of the Rejected S-NSSAI. Samsung responded that the current Rel-15 definition allowed the Rejected S-NSSAI to support this kind of scenario. ZTE disagreed. The use of the Rejected S-NSSAI needs further discussion off-line.
* Intel commented that, Samsung’s solution requires the support of Allowed NSSAI which is not always possible for some UEs. On the other hand, Convida’s solution#2 provide RFSP indices to the RAN to support cell redirection. Intel believes that Convida and Samsung can merge their proposals on how to support RAN for cell redirection.
* ZTE asked given today RFSP index is derived based on Allowed NSSAI, when Samsung proposed to have RFSP index generated based on Requested NSSAI, how does AMF know for which S-NSSAI in the Requested NSSAI that the RFSP needs to be provided to RAN? This seems to be fundamental changes to the network. Such system impact needs to be clarified in Samsung’s proposal. In general, all solutions should provide more info in term of system impact instead of just only one line description.
* E/// raised concern that, given that we are still waiting for the responses from RAN and SA1 as indicated in the EN in the KI, how should we proceed with this KI? Both Intel and DT don’t believe that SA2 should proceed until we get the response from RAN and SA1. Convida responded that, the architecture assumption on whether PDU sessions for different operation frequency bands are allowed within the Allowed NSSAI is determined by SA2 and such information is needed for RAN for them to address same KI. Samsung further explained that, this KI is driven by the GMSA GST requirement and not driven by RAN or SA1. There is misunderstanding for this KI related to the network selection. In fact, this KI is for the same PLMN when different operating frequency bands are supported by different cells in different S-NSSAIs, how should the network handle such deployment scenario?
* Rapporteur suggested to work offline to clarify the scope of KI#7 along the line that Samsung explained so that there is no confusion on the objective of this KI#7.
* As a way forward: Samsung will kick off the discussion on the clarifications of this KI#7 on the SA2 mailing list, and then we can work together to prepare an update of this KI for the next SA2#139e meeting.
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| **Key Issue #8:** **Area of service: impact on PLMN selection in roaming** |
| 4 | S2-20xxxxx-Solution-for-Key issue-8 FS\_eNS\_ph2 Apple1 | 8 | **Apple** |  |  |
| Meeting Notes: * DT shared the incoming LS from GSMA that, there is currently no new requirement for PLMN selection in roaming scenario. As for the slicing scenario, GSMA will look into further to determine whether if there is any new requirement.
* AT&T proposed to park this KI#8 until further requirement is provided, and everyone seem to agree.
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| 5 | S2-20xxxxx-Solution-for-Key issue-8\_FS\_eNS\_ph2 Apple2 | 8 | **Apple** |  |  |
| **Late PCRs** |
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